

Replacing a T168 or T158 with the T8168 Proportional Controller

The default configuration for theT8168 is for Three Wire Floating (TWF) output operation. It also offers 0-10 VDC heat and cool outputs. The TWF outputs can be reconfigured for ON/OFF operation. The default Fan operation is 2-speed, user selectable.

Please refer to the installation instructions for the full list of capabilities.

This document discusses replacement of the following model series:

TA158 PECO Fan Coil Thermostat Controls On /Off valves, dampers and relays

TB158 PECO Modulating Fan Coil Thermostat

Controls 3-Wire Floating, On /Off valves, dampers and relays

TA168-100 PECO 0-10 VDC Controller

Controls 0-10 VDC valves. This model also has 24 VAC outputs to control a damper, auxiliary heat and fan cycling via a customer provided relay.

Key features: Non-programmable Range 50-90F User selection of Off-Heat-Cool-Auto Size: 4.5" x 2.8" 3-Speed Fan. These are general fan continuous applications. They can be 24 up to 277VAC and are electrically isolated from thermostat switching.

Not all thermostats have all available features.

Terminal	Description			
24 VAC-1	24 VAC 1 (UNSWITCHED)			
24 VAC-2	24 VAC 2			
24 VAC-2	24 VAC 2			
Y1	COOL 1	COOL Open (TWF)		
W1	HEAT 1	HEAT Open (TWF)		
Y2	COOL 2 or FAN MED	COOL Close (TWF)		
W2	HEAT 2	HEAT Close (TWF)		
G	FAN HI			
G1	FAN LO or DAMPER Configurable			
YD	0-10VDC COOL (4-20mA)			
WD	0-10VDC HEAT (4-20mA)			
GD	0-10VDC FAN (4-20mA)			
S1	REMOTE SENSOR, FAULT DETECTION			
S2	PIPE SENSOR			
SC	DC / SENSOR COMMON			
4A	RS485A			
4B	RS485B			
4C	RS485 COMMON			

TWF = Three Wire Floating valve operation

T8168 Terminal Connections

Key Model Differences:

Overall Size

T8168 = 5.7" x 4.2" T158/T168 = 4.5" x 2.8"

Fan Operation

The T8168 fan can be controlled by user for continuous or cycled operation for either ON-OFF or 0-10 VDC Fan Output. When configured for 0-10 VDC fan operation G1 is available for a damper operation.

There is no line voltage capability on the T8168. You will need relays to support switching if the existing thermostat is currently switching line voltage to the fan.

Added Capabilities

- Configurable for Programmable Scheduling
- Second Stage Cool -ON/OFF operation
- 0-10 VDC Fan
- Fault Detection
- Keypad Lock Out
- NO/NC W1 Heat Configuration

T8168 Wiring Diagram



Terminal Designations by Model for ON-OFF and Three Wire Floating Control

			HEAT Outputs - Depends on Configuration					COOL Outputs - Depends on Configuration				
Model	24 VAC 1	24 VAC 2	0-10 VDC Heat	Heat stage 1 ON/OFF	Heat stage 2 ON/OFF	Heat Open TWF	Heat Close TWF	0-10 VDC COOL	Cool stage 1 ON/OFF	Cool stage 2 ON/OFF	Cool Open TWF	Cool Close TWF
T8168	VAC1	VAC 2	WD	W1	W2	W1	W2	YD	Y1	Y2	Y1	Y2
TA158	5	6	Not Available	11	13	11	13	Not Available	10		10	12
TB158	5	6	Not Available	11	13	11	13	Not Available	10		10	12
TA168	5	6	11	Not Available	13	Not Available	Not Available	10				

T8168 Application Replacement Guide for T158/T168

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Fan Operation

Fan operation is service menu configurable for 24VAC ON/OFF, 0-10VDC multi-speed or 0-10VDC Proportional.

The T8168 does not have line voltage capability for fan. You may need to use relays for fan speed when replacing the T158 or T168.

Please visit Pecocontrolsystems.com for additional information on our controls!

Configuration

The control may require configuration. Please consult the Installation Guide that was shipped with your new control for more information.

Key Service Menu Configuration:

The following Service Menus should be considered.

- 100 = Programmable or Non-Programmable
- 110 = System Type
- 112 = System Fan Type (ON/OFF or 0-10 VDC)
- 135 = W1 Heat Output NO or NC
- 170 = Remote Sensor Input
- 171 = Fan Coil Pipe Sensor Operation
- 375 = System Flush Operation
- 380 = Dead Band
- 480 = Minimum Off Time

SERVICE MENU ACCESS

- 1. Hold lower right and lower left keys for five seconds.
- 2. Press Next or Go Back button to select a Service Menu.
- 3. Press \blacktriangle / \blacktriangledown to select option. 4. Press Done when complete.



FAN					Probes				
FAN Supply	Fan HI	Fan LO	Fan MED	Remote Sensor	Pipe Sensor	Sensor Common	Setback	Damper	Demand Output
This unit is 24VAC ONLY. Relays will be required for Line Voltage Fan Applications	G	G1	Y2 is not available unless 3-speed fan is available	S1	S2	SC	Not Available	G1 Only avail- able for sin- gle speed operation	Not Available
1 This input maybe 24-277 VAC	4	2	3	15	17	16	7	14	12
1 This input maybe 24-277 VAC	4	2	3	15	17	16	7	14	12
1 This input maybe 24-277 VAC	4	2	3	15	17	16	7	14	12

Legacy T158 Information





CIRCUIT BOARD JUMPER CONFIGURATION					
Jumper Designation	Jumper Installed - ON	Jumper Removed - OFF			
JP 1	Local Sensing	Remote Sensing			
JP4	2 Pipe System	4 Pipe System			

DIP SWITCH CONFIGURATION					
DIP Switch Numbe	DIP Closed	DIP Open			
1	Secondary 1 N.C. (Terminal 11)	Secondary 1 N.O. (Terminal 11)			
2	Main 1 N.C. (Terminal 11)	Main 1 N.O. (Terminal 11)			
3	F Display	C Display			
4	Secondary 3-wire Floating (term 11 & 13)	Secondary 2 Stage On/Off (term 11 & 13)			
5	Main 3-wire Floating (term 10 & 12)	Main On/Off (term 10 & 12)			
6	Setback = 90F & 50F	Setback = 85F & 60F			

Legacy T168 Information





CIRCUIT BOARD JUMPER CONFIGURATION						
Jumper Designation	Closed Open ON OFF					
JP 1	Local Sensing	Remote Sensing				
JP 2	2 Pipe System 4 Pipe System					
JP 3	Factory Use					
JP 4	0-10 VDC Main Output	4-20 mA Main Output				
JP 5	0-10 VDC Secondary Output	4-20 mA Secondary Output				
DIP SWITCH CONFIGURATION						
DIP Switch Number	Closed ON	Open OFF				
1	Not Used	Not Used				
2	Staged Heat 3°F Diff. (Term 13)	Aux Heat No Diff. (Term 13)				

F Display

Main & Sec Outputs

0-10 VDC (Term 10 & 11)

Install JP 4 and JP 5

Operating Position

Setback = 90°F & 50°F

3

4

5

6

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C Display

Main & Sec Outputs

4-20 mA (Term 10 & 11)

Remove JP 4 and JP 5

Not Used

Setback = 85°F & 60°F